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PPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO
09/884,670	06/19/2001	Stephen R. Fox	YOR920010104(14270)	4482
7590 05/19/2004			EXAMINER POMPEY, RON EVERETT	
Steven Fischman Esq.				
	urphy and Presser			
400 Garden Cit	y Plaza	* .	ART UNIT	PAPER NUMBER
Garde City, N	Y 11530		2812	· · · · · · · · · · · · · · · · · · ·

DATE MAILED: 05/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

,	Application No.	Applicant(s)	
	09/884,670	FOX ET AL	
Office Action Summary	Examiner	Art Unit	·
	Ron E Pompey	2812	AN
The MAILING DATE of this communication app Period for Reply	ears on the cover sheet with the c	orrespondence address	
A SHORTENED STATUTORY PERIOD FOR REPLY THE MAILING DATE OF THIS COMMUNICATION.  - Extensions of time may be available under the provisions of 37 CFR 1.13 after SIX (6) MONTHS from the mailing date of this communication.  - If the period for reply specified above is less than thirty (30) days, a reply If NO period for reply is specified above, the maximum statutory period w  - Failure to reply within the set or extended period for reply will, by statute, Any reply received by the Office later than three months after the mailing earned patent term adjustment. See 37 CFR 1.704(b).	36(a). In no event, however, may a reply be ting within the statutory minimum of thirty (30) day will apply and will expire SIX (6) MONTHS from cause the application to become ABANDONE	nely filed s will be considered timely. the mailing date of this communication D (35 U.S.C. § 133).	<b>1.</b>
Status			
1) Responsive to communication(s) filed on 19 A	oril 2004.	•	•
2a) ☐ This action is <b>FINAL</b> . 2b) ☑ This	action is non-final.	,	
3) Since this application is in condition for allowar	nce except for formal matters, pro	osecution as to the merits is	3
closed in accordance with the practice under E	x parte Quayle, 1935 C.D. 11, 4	53 O.G. 213.	
Disposition of Claims			
	na in the application	•	
4) ☐ Claim(s) <u>1-22,25-36,40 and 48-50</u> is/are pendi 4a) Of the above claim(s) is/are withdraw		*	
5) Claim(s) is/are allowed.	WIT FIGHT CONSIDERATION.	* . •	
6)⊠ Claim(s) <u>1-22, 25-36, 40 and 48-50</u> is/are reje	cted		
7) Claim(s) is/are objected to.	-		
8) Claim(s) are subject to restriction and/o	r election requirement.		
, , , , , , , , , , , , , , , , , , , ,			
Application Papers	*	•	
9) ☐ The specification is objected to by the Examine		· .	
10) ☐ The drawing(s) filed on is/are: a) ☐ acc		· ·	
Applicant may not request that any objection to the			
Replacement drawing sheet(s) including the correct			d). ,
Priority under 35 U.S.C. § 119		ie.	
		) (d) on (f)	
12) Acknowledgment is made of a claim for foreign	priority under 35 U.S.C. § 119(a	)-(a) or (i).	
a) ☐ All b) ☐ Some * c) ☐ None of:  1.☐ Certified copies of the priority document	s have been received		
<ul><li>1. Certified copies of the priority document</li><li>2. Certified copies of the priority document</li></ul>		ion No	•
3. Copies of the certified copies of the prior			
application from the International Burea			
* See the attached detailed Office action for a list	· ·	ed.	
	•	2	
Attachment(s)	*	:	
1) Notice of References Cited (PTO-892)	4) Interview Summary		
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail D 5) Notice of Informal I	ate Patent Application (PTO-152)	
Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)     Paper No(s)/Mail Date	6) Other:	ation representation (1.10-102).	

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## **DETAILED ACTION**

## Claim Rejections - 35 USC § 103

- 1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
  - (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
- 2. Claims 1-22, 25-36, 40 and 48-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sadana et al. (US 6,090,689) in further view of Tachimori et al. (US 5,534,446), Sadana et al. (US 5,930,643) and admitted prior art.

Sadana ('689) discloses the steps of:

For claims 1-22 and 25-29:

implanting oxygen ions (14, 18, fig. 2) into a surface of a Si-containing substrate, said implanted oxygen ions having a concentration sufficient to form a buried oxide region during a subsequent annealing step; and

annealing said substrate wherein, said implanted oxygen ions form said buried oxide region (22, fig. 3) (col. 3, Ins. 6-12 and col. 4, In. 8 – col. 5, In. 34).

Sadana ('689) discloses the claimed invention except for:

wherein the annealing step is carried out in an ambient gas comprising at least one high-surface mobility gas that hinders oxide growth;

wherein the annealing step comprises the steps of: partially annealing the substrate so as to form a surface layer of oxygen on the substrate; stripping the surface

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layer of oxygen; and continuing the annealing to complete the formation of said BOX region; and

optically detecting said other defects.

However, Tachimori teaches an annealing step is carried out in an ambient gas comprising at least one high-surface mobility gas that hinders oxide growth (col. 7, ln. 55 – col.8, ln.5) and Sadana('643) teaches partially annealing the substrate so as to form a surface layer of oxygen on the substrate; stripping the surface layer of oxygen; and continuing the annealing to complete the formation of said BOX region (col. 5, lns. 22-43).

Therefore it would have been obvious to those of ordinary skill in the art to combine Tachimori and Sadana ('643) because, the high-surface mobility gas will prevent the semiconductor surface from roughening and that the oxide is of poor quality and needs to be removed before forming a device on the SOI substrate.

Also the admitted prior art (see page 3, lines 1-4) disclose is it well known in the art to use an optical inspection tool to inspect process induced features or defects.

## Response to Arguments

3. Applicant's arguments filed 4-19-04, pertaining to claims 1-22, 25-36, 40, 48-50, have been fully considered but they are not persuasive. The applicant argues that "... none of the prior art methods teach or suggest a method in which annealing is carried out until tile or divot defects present at a top surface of said superficial Sicontaining layer are reduced so as to allow optical detection of any other defect that has

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a lower density than the tile or divot defect, and then optically detecting said other defects."

However, since the prior art reads on the **claimed** parameters used to anneal an oxygen-implanted substrate the same results will be achieved as applicants **claimed** invention. Additionally the optically detecting defects; limitation provided in amendment, are addressed in the above rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ron E Pompey whose telephone number is (571) 272-1680. The examiner can normally be reached on flex schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Niebling can be reached on (571) 272-1679. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ron Pompey AU: 2812 May 17, 2004

/John F. Niebling Supervisory Patent Examiner Technology Center 2800